

WHAT IS CLAIMED IS:

- 1 1. In a broadband network having a hybrid fiber coax (HFC)
2 network having network elements operable for communicating telephony, data, and
3 video signals with customer-premises equipment (CPE) of subscriber households, the
4 network elements including a host digital terminal (HDT) for communicating the
5 telephony signals, a cable modem termination system (CMTS) for communicating the
6 data signals, and video equipment for communicating the video signals, a fiber optics
7 network connecting the HDT, CMTS, and video equipment to a fiber optics node,
8 and a coax cable network connecting the fiber optics node to the CPE of the
9 subscriber households, an HFC network management system comprising:
10 a service, design, and inventory (SDI) system having a database
11 operable for storing data indicative of an inventory of the network elements and the
12 CPE in the HFC network, for storing data indicative of configuration of the network
13 elements and the CPE in the HFC network, and for storing data indicative of
14 assigned capacity of the HFC network based on the configuration of the network
15 elements and the CPE.
- 1 2. The HFC network management system of claim 1 wherein:
2 the data indicative of configuration of the network elements includes
3 data indicative of physical and logical connections between the network elements.
- 1 3. The HFC network management system of claim 1 wherein:
2 the data indicative of configuration of the network elements includes
3 data indicative of physical and logical connections between the HFC network and the
4 CPE.
- 1 4. The HFC network management system of claim 1 wherein:
2 the SDI system is operable to generate an SDI system report for at
3 least one of a network element and a CPE, the SDI system report including
4 information about the at least one network element and the CPE.
- 1 5. The HFC network management system of claim 1 wherein:

2 the data indicative of an inventory of the network elements and the
3 CPE includes data indicative of subscriber households passed in the HFC network.

1 6. The HFC network management system of claim 5 wherein:
2 the data indicative of subscriber households passed in the HFC
3 network includes for each subscriber household data indicative of the fiber node
4 connected to the CPE of the subscriber household and the coax bus connecting the
5 subscriber household to the fiber node.

1 7. The HFC network management system of claim 6 wherein:
2 the data indicative of subscriber households passed in the HFC
3 network further includes for each subscriber household data indicative of household
4 key, household address, and household location.

1 8. The HFC network management system of claim 1 wherein:
2 the data indicative of an inventory of the network elements and the
3 CPE includes data indicative of physical location and identification of the network
4 elements.

1 9. The HFC network management system of claim 1 wherein:
2 the data indicative of an inventory of the network elements and the
3 CPE includes data indicative of profiles of the network elements and the CPE.

1 10. The HFC network management system of claim 1 further
2 comprising:
3 an HFC network manager operable for controlling the configuration
4 of the network elements and the CPE in the HFC network, wherein the database of
5 the SDI system updates the stored data indicative of the configuration of the network
6 elements and the CPE in the HFC network in response to the HFC network manager
7 changing the configuration of the network elements and the CPE in the HFC
8 network.

1 11. The HFC network management system of claim 1 further
2 comprising:
3 a fault manager having an alarm visualization tool operable with the
4 database of the SDI system for generating visual displays of the configuration of the
5 network elements and the CPE in the HFC network.

1 12. The HFC network management system of claim 1 further
2 comprising:
3 an online provisioning application link (OPAL) operable with the
4 database of the SDI system for provisioning network elements with CPE based on
5 the assigned capacity of the network elements.

1 13. A system for providing efficient management of hybrid fiber
2 coax (HFC) network resources comprising:
3 an operations center;
4 a server; and
5 a network connecting the operations center to the server;
6 wherein the server includes an HFC network order manager for order
7 management of HFC services provided by the HFC network, an HFC network
8 inventory manager for inventory management of HFC network elements and
9 customer-premises equipment within the HFC network, and an HFC network design
10 manager for design management of the HFC network elements and the customer-
11 premises equipment within the HFC network.

1 14. The system of claim 13 wherein:
2 the HFC network inventory manager includes means for tracking the
3 use of and availability of HFC network elements and CPE.

1 15. The system of claim 13 wherein:
2 the HFC network order manager includes means for tracking the
3 orders for HFC services.

1 16. The system of claim 13 wherein:

2 the HFC network design manager includes means for creating an HFC
3 network design.

1 17. A hybrid fiber coax (HFC) network management method for use
2 in a broadband network having a HFC network provided with network elements
3 operable for communicating telephony, data, and video signals with customer-
4 premises equipment (CPE) of subscriber households, the network elements including
5 a host digital terminal (HDT) for communicating the telephony signals, a cable
6 modem termination system (CMTS) for communicating the data signals, and video
7 equipment for communicating the video signals, a fiber optics network connecting
8 the HDT, CMTS, and video equipment to a fiber optics node, and a coax cable
9 network connecting the fiber optics node to the CPE of the subscriber households,
10 the HFC network management method comprising:
11 storing data indicative of an inventory of the network elements and the
12 CPE in the HFC network;
13 storing data indicative of configuration of the network elements and
14 the CPE in the HFC network; and
15 storing data indicative of assigned capacity of the HFC network based
16 on the configuration of the network elements and the CPE.

1 18. The HFC network management method of claim 17 wherein:
2 storing data indicative of configuration of the network elements
3 includes storing data indicative of physical and logical connections between the
4 network elements.

1 19. The HFC network management method of claim 17 wherein:
2 storing data indicative of configuration of the network elements
3 includes storing data indicative of physical and logical connections between the HFC
4 network and the CPE.

1 20. The HFC network management method of claim 17 further
2 comprising:

3 generating an SDI system report for at least one of a network element
4 and a CPE, the SDI system report including information about the at least one
5 network element and the CPE.

1 21. The HFC network management method of claim 17 wherein:
2 storing data indicative of an inventory of the network elements and the
3 CPE includes storing data indicative of subscriber households passed in the HFC
4 network.

1 22. The HFC network management method of claim 21 wherein:
2 storing data indicative of subscriber households passed in the HFC
3 network includes storing for each subscriber household data indicative of the fiber
4 node connected to the CPE of the subscriber household and the coax bus connecting
5 the subscriber household to the fiber node.

1 23. The HFC network management method of claim 17 wherein:
2 storing data indicative of an inventory of the network elements and the
3 CPE includes storing data indicative of physical location and identification of the
4 network elements.

1 24. The HFC network management method of claim 17 wherein:
2 storing data indicative of an inventory of the network elements and the
3 CPE includes storing data indicative of profiles of the network elements and the
4 CPE.

1 25. The HFC network management method of claim 17 further
2 comprising:
3 generating visual displays of the configuration of the network elements
4 and the CPE in the HFC network.

1 26. The HFC network management method of claim 17 further
2 comprising:

3 provisioning network elements with CPE based on the assigned
4 capacity of the network elements.

1 27. The HFC network management method of claim 17 further
2 comprising:

3 controlling the configuration of the network elements and the CPE
4 in the HFC network; and

5 updating the stored data indicative of the configuration of the network
6 elements and the CPE in the HFC network in response to the HFC network manager
7 changing the configuration of the network elements and the CPE in the HFC
8 network.